

# Pathways to Literacy Project

## Why is this project important?

Studies have documented the strong, unique impact of children's executive functions, self-regulation on academic achievement in kindergarten and beyond, however research suggests that significant numbers of children enter school without the self-regulation skills needed to function adequately in classrooms. One important period for the development of these skills is the transition to elementary school. Evidence suggests that growth of self-regulation is not solely due to maturation but is also greatly influenced by experiences that children have in pre-K and early in elementary school. We are interested in learning about how young children develop these basic skills that are important for academic success.

This research project was developed to learn more about the impact of experiences with early schooling on changes in children's academic skills and self-regulation (e.g., the ability to pay attention, remember information, and regulate their behavior) and brain development that occurs as children acquire these abilities. It is unique in that we are using equipment that allows us to measure children's brain responses while they are engaged in tasks. By measuring children's neurological functioning during self-regulation tasks, we are able to understand the ways that they are regulating their behavior. This allows us to understand the impact of experiences in school on children's brain development.

## How is children's brain development assessed?

Our brain produces electrical signals while we think and work, and the ERP is a pattern of electrical signals generated in response to a specific event or task. Using safe, non-invasive technology we collect ERP data using a special cap while children are engaged in tasks. We have used this technology with 3-8 yr. old children extensively both in our laboratory, but also directly in elementary schools. An ERP is an acronym for the term "event-related potential." You may be familiar with the acronym, EEG (used to measure heart rate at a hospital). We will be using EEG technology to measure ERPs.



A child in an ERP cap

## Who can participate?

In the first year we will recruit kindergarten students. We hope to follow those students through second grade, and will also attempt to recruit more students from first and second grades during the subsequent years of the study. All children in these grades in participating schools will be invited to be a part of the project.

## What is the time commitment for schools and students?

Members of our research team has extensive experience working within schools and are sensitive to the needs and time of staff, teachers, parents, and students. It is our goal that this investigation will not impact the daily activities of teachers or staff within the elementary schools we are working with. Before beginning the project, we meet with administrators, teachers, and staff to describe the research. In discussion with them, we determine spaces and times for conducting assessments that are least intrusive to ongoing classroom activities. We estimate that each child in the study will be taken out of class for two 60 minutes testing sessions in the school building each year scheduled at the convenience of teachers and parents.

## What are the benefits of being involved with this project?

The study has considerable educational relevance. It has been our experience that educators are keenly interested in children's developing regulatory skills and are aware of their contribution to the mastery of basic academic tasks. As such, an increased understanding of the importance of educational settings that foster the development of these skills, as assessed both behaviorally and neurologically, can have long-term implications for increasing understanding of children's performance in the classroom.

In addition, we anticipate that the tasks that we complete with the children will be enjoyable, and that teachers would benefit from the knowledge gained by this study. We will provide teachers and families with a written report of our results, and are happy to offer informational presentations related to this work to teachers and parent organizations.

**Additional questions about the project?**  
**Please contact us!**

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